

## Grade 9 Math

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- Please feel free to contact me by telephone (mornings) or e-mail if you have questions, need information, would like to find out about homework that will be missed due to your child's absence, etc. Please also see the wikispace above. I will be posting information, daily homework, important dates, etc.
- Also, please sign up with your e-mail address (or send me an e-mail) that you'd like me to use to contact you with information regarding your child.

### Course Description and Information

**It is extremely important that your child has the following materials for EVERY class.** If your child does not have these in class, they will have difficulty following the lesson and doing the work at end of class.

\*\*\*Of particular importance is a **scientific calculator** which your child needs immediately for class and will use the entire year (and years to follow in Math)!\*\*\*\*

- textbook (provided - must be returned at end of year in good condition)
  - Scientific calculator
  - red pen
  - ring binder
  - duo-tang/small binder for portfolio (needed sometimes)\*
  - geometry set (certain units)
- \* pencil and eraser
  - \* ruler
  - \* graph paper



▷ French is the language of instruction and it is expected that students always communicate with the teacher and their peers in French. Use of French will appear as a comment on the report card

▷ Use of cell phone /communication device in classrooms is prohibited.. as per divisional policy (unless being used for a class activity). If a cell phone is in class, it should remain out of sight (in purse, pocket, backpack, etc.) and turned off.

### Tips for a Successful year in Math

- always bring ALL materials to class
- use a pencil, ruler and eraser always for Math work and for tests
- copy ALL **notes** that teacher writes down.. **in the same way it is written on the board**
- **do practice questions assigned by teacher immediately and seek help as needed while completing. Be sure to correct answer.**
- start homework in class when possible – seek help regarding any questions before leaving classroom
- **do ALL homework (use notes as a reference in completing homework) – consider doing Math at lunchtime**
- **Correct ALL homework** using answers in text or given answer keys, then make corrections.
- If a student doesn't know how to correct a question, then he/she should be sure to find out how to complete that question correctly

**Textbook:** *Liens Mathématiques 9* : **Semester 1** chapters 1,2,3,4,5,6; **Semester 2** chapters 8,9,10, 11,4

**Chapters:** **1** Symmetry and Surface Area **2** Rational Numbers; **3** Powers and Exponents; **4** and **5** Polynomials; **6** Linear Relations **8** Solving Equations; **9** Linear Inequalities; **11** Data Analysis (Probability and Statistics); **10** Circle Geometry;; **4** Scale Factors and Similarity

### Evaluation :

▷ The final mark for the course will be as follows:

\*Tests, Quizzes, Mental Math, Understanding Checks 55 %

\*Homework, projects, presentations, portfolio 20%

\*mid-term exam (January) : 10 %

\*Final exam (June): 15%

Students **who do not submit larger projects and presentations on time** may have some of the following in place to support them so that they can complete the project (following provincial evaluation guidelines):

- conference with parent and students to discuss the reasons for the assignment not being completed
- student staying at lunch time in the resource room every lunch hour until project is completed
- possible peer tutor to help student with project completion
- marks possibly deducted for project being submitted after deadline.

▷ Tests - every 2-3 weeks (usually Friday)

- Students should endeavour to always be present in class for each test day.

-based on new material and also cumulatively based on previous material

**\*\*If a student knows he/she will miss a test, the student should tell me before the test (or send an e-mail) to arrange a time to write the test. If the student will miss the test due to illness, please phone the school. The student should expect to write the test upon return to school. A student must bring a note or have parent phone/e-mail regarding absence before missed test can be written. **A student who misses a test due to an unexcused absence may receive a mark of 0.** Students are expected to keep parents informed of progress by having tests signed. Please watch for tests coming home every 2-3 weeks (usually on Monday or Tuesday).**

▷ Mental Math

Mental Math takes place right at the start of the class. Punctuality is very important as a student who arrives late will miss this activity that day. Mental Math forces students to think about numbers and about relations between these numbers.

▷ Completing Math Homework is Vital for Success in Math!

-Just as we learn to play a sport or a musical instrument by practicing (and not just by watching the instructor), **we learn Math by doing**. The daily completion of all assigned Math homework is critical to your child learning the skills in this subject. Please help your child as needed to find a place in your home and a daily time to finish homework not completed in class.

-Students will usually have homework assigned during class and will generally be given some class time to get started on the assignment. It is important they use that time to make sure they understand the assignment before leaving class.

**\*\*It is the student's responsibility to do all homework, even when he/she is absent.** She/he should ask for the missed assignment from the teacher (**before** missed class if known in advance; before/ after class or by e-mail from teacher, from a classmate, or by checking wiki [see address at top of reverse side of page]).\*\*

Patterns and Relations Ch.5, 6, 7, 8, 9
<b>General Outcome</b> <i>Use patterns to describe the world and solve problems.</i>
9.PR.1. Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution. [C, CN, PS, R, V]
9.PR.2. Graph linear relations, analyze the graph, and interpolate or extrapolate to solve problems. [C, CN, ME, PS, R, T, V]
<b>General Outcome</b> <i>Represent algebraic expressions in multiple ways.</i>
9.PR.3. Model and solve problems using linear equations of the form: <ul style="list-style-type: none"> <li><math>ax = b</math></li> <li><math>ax + b = c</math></li> <li><math>ax = b + cx</math></li> <li><math>a(x + b) = c</math></li> <li><math>ax + b = cx + d</math></li> <li><math>a(bx + c) = d(ex + f)</math></li> <li><math>\frac{a}{x} = b, x \neq 0</math></li> </ul> where $a, b, c, d, e$ and $f$ are rational numbers. [C, CN, ME, PS, V]
9.PR.4. Explain and illustrate strategies to solve single variable linear inequalities with rational number coefficients within a problem-solving context. [C, CN, ME, PS, R, V]
9.PR.5. Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2). [C, CN, R, V]
9.PR.6. Model, record, and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially, and symbolically (limited to polynomials of degree less than or equal to 2). [C, CN, ME, PS, R, V]
9.PR. 7. Model, record, and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially, and symbolically. [C, CN, R, V]

We will be covering all the chapters in the textbook this year. Here are the specific learning outcomes (**skills**) for grade 9 Math as set by the Department of Education. The outcomes are divided into general learning outcomes - the four strands of Patterns and Relations; Statistics and Probability; Shape and Space; Number. At the end of each term I will be asking students to self- evaluate their strengths, weaknesses and goals as they relate to these learning outcomes. The report card will comment on some of these outcomes.

Number ch. 2, 3
<b>General Outcome</b> <i>Develop number sense.</i>
9.N.1. Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by: <ul style="list-style-type: none"> <li>representing repeated multiplication using powers</li> <li>using patterns to show that a power with an exponent of zero is equal to one</li> <li>solving problems involving powers</li> </ul> [C, CN, ME, PS, R]
9.N.2. Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents. [C, CN, ME, PS, R, T]
9.N.3. Demonstrate an understanding of rational numbers by <ul style="list-style-type: none"> <li>-comparing and ordering rational numbers</li> <li>-solving problems that involve arithmetic operations on rational numbers</li> </ul> [C, CN, ME, PS, R, T, V]
9.N.4. Explain and apply the order of operations, including exponents, with and without technology. [ME, PS, T]
9.N.5. Determine the square root of positive rational numbers that are perfect squares. [C, CN, ME, PS, R, T]
9.N.6. Determine the approximate square root of positive rational numbers that are non-perfect squares. [C, CN, ME, PS, R, T]

Statistics and Probability ch. 11
<b>General Outcome</b> <i>Collect, display, and analyze data to solve problems.</i>
9.SP.1. Describe the effect of: <ul style="list-style-type: none"> <li>bias</li> <li>use of language</li> <li>ethics</li> <li>cost</li> <li>time and timing</li> <li>privacy</li> <li>cultural sensitivity on the collection of data.</li> </ul> [C, CN, R, T]
9.SP.2. Select and defend the choice of using either a population or a sample of a population to answer a question. [C, CN, PS, R]
9.SP.3. Develop and implement a project plan for the collection, display, and analysis of data by formulating a question for investigation choosing a data collection method that includes social considerations selecting a population or a sample collecting the data displaying the collected data in an appropriate manner drawing conclusions to answer the question [C, PS, R, T, V]
<b>General Outcome</b> <i>Use experimental or theoretical probabilities to represent and solve problems involving uncertainty.</i>
9.SP.4. Demonstrate an understanding of the role of probability in society. [C, CN, R, T]

Shape and Space ch. 1, 4, 10
<b>General Outcome</b> <i>Use direct or indirect measurement to solve problems.</i>
9.SS.1. Solve problems and justify the solution strategy using circle properties including <ul style="list-style-type: none"> <li>-the perpendicular from the centre of a circle to a chord bisects the chord</li> <li>-the measure of the central angle is equal to twice the measure of the inscribed angle subtended on the same arc</li> <li>-the inscribed angles subtended by the same arc are congruent</li> <li>-a tangent to a circle is perpendicular to the radius at the point of tangency</li> </ul> [C, CN, PS, R, T, V]
<b>General Outcome</b> <i>Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.</i>
9.SS.2. Determine the surface area of composite 3-D objects to solve problems. [C, CN, ME, PS, R, V]
9.SS.3. Demonstrate an understanding of similarity of polygons. [C, CN, PS, R, V]
<b>General Outcome</b> <i>Describe and analyze position and motion of objects and shapes.</i>
9.SS.4. Draw and interpret scale diagrams of 2-D shapes. [CN, R, T, V]
9.SS.5. Demonstrate an understanding of line and rotation symmetry. [C, CN, PS, V]

## Help for High School Math

High school math – it's a challenge for many students, but almost anyone can be successful in high school math classes. This article with some ideas from [Susan Carkner](#) (August 2010) will provide a few simple strategies to help improve math marks and increase confidence on math assignments and tests.

## Practice, Practice, Practice

Math is learned by doing. Math homework helps you learn the concepts introduced in class. It's not enough to pay attention as the teacher demonstrates a lesson - you must also **practice the math yourself**, by completing homework and daily assignments (***and make sure to always check your work carefully***). Imagine playing in a hockey game or a piano recital without ever having practiced. Is it enough to have simply watched the coach or teacher play? Of course not. Doing math homework helps make the work more automatic for your brain, and allows you to reach a better understanding of the subject. In other words - for math, practice makes perfect!

## Learn First Things First

High school math classes are almost always structured so that simpler concepts are presented early on, and more complex ideas are learned later in the course. Make sure you understand the course work as you go along, so that you can build on that knowledge later. For example, students use their knowledge of simple multiplication to solve the algebra problem  $2A = 4$ . Imagine how hard it would be to solve this problem without knowing that 2 times 2 equals 4!

## Show Off Your Work

While reading the textbook and taking notes in class, pay attention to how the teacher and textbook present their work when solving a problem. Make sure you copy everything the teacher writes, in the same way. There are certain conventions that almost always apply, such as aligning equal signs vertically on the paper when solving algebra problems. The teacher may have other standards they would like you to follow. On tests and assignments, your marks will partially depend on showing your reasoning process - so for higher math marks, make sure to show your work, and make it as easy to read as possible! Use the notes given by the teacher to complete your homework so that you get used to the manner the teacher would like you to show your work (which means - make sure you've taken good, legible notes that you can use).



## Reach Out for Help

Finally, don't be afraid to ask for help with math if you need it. **If you are doing the homework and checking your answers regularly, you will know when you have difficulty and you can ask the teacher for help immediately** (in class or out of class). (See the wikispace for all the help available.) Mme Whicker is available 8:40 every day and at lunch Tuesday and Thursday. There is Kelvin Math help every day at lunch - info posted in class. You can do your homework in the resource room (23) at lunch and get help. You can also fill in a form there to ask for a peer tutor. If you are taking the course called Reading is Thinking, you sometimes have time for homework there and can get help.

Make sure you always use time given in class to work on examples or to start on homework so that you can ask for help before you're trying the rest of the work at home.

If you feel completely over your head, perhaps it is time to consider a peer tutor or **outside tutor** to help with your math course. You can find out more about peer tutors or can see a list of outside tutors in the resource class, room 23. Sometimes a few sessions with a tutor are all it takes to clear up some misconceptions and help a student achieve higher math marks.

**High school math can be intimidating, but success is within reach!**

